Instructions for Computing Nutrient Reductions from Street Sweeping and Structural Maintenance Activities for the Lower St. Johns Main Stem BMAP
Florida Department of Environmental Protection
August 22, 2008

Basis of Credits for Nonstructural Stormwater Efforts

The FDEP is co-sponsoring Florida-specific research on the effectiveness of nonstructural management practices. For example, the Florida Stormwater Association (FSA) has a research project underway to measure and document load reductions from street sweeping activities. There are other studies on-going examining the effectiveness of "Stormceptor" and continuous deflective separation (CDS) units when they are regularly maintained. The reduction values provided in this paper, therefore, are *provisional* until the newer, Florida-specific research is completed and accepted by the Department. Those who would like to use these provisional reduction values in the BMAP, therefore, should consider that the estimates may change—including a decrease. The FDEP usually gives entities 12 months to make up for adjusted values with other projects that achieve comparable load reductions. If the load reductions estimates increase based on new research, the additional load reductions can be reported during implementation, pending FDEP acceptance of the revised estimates.

Non structural Activities and BMP Reduction Values

Street sweeping reductions can be computed for both total nitrogen and total phosphorus. Stormceptor and CDS estimates of reduction only apply to total phosphorus reductions (not total nitrogen). Public education reductions can be applied to both total nitrogen and total phosphorus loads and are based upon a U.S. EPA-Center for Watershed Protection model.

PROVISIONAL BMPs			
BMP Activity	**Reduction for TP**	**Reduction for TN**	**Information Source**
Street Sweeping (2x/wk)	20%	10%	B. Kelly evaluation of FDOT 2001
Street Sweeping (1x/wk)	15%	7.5%	B. Kelly evaluation of FDOT 2001
Street Sweeping (1x/2wks)	10%	5%	B. Kelly evaluation of FDOT 2001
Stormceptor	10%	Not applicable	E. Livingston - BPJ/data
CDS	5%	Not applicable	E. Livingston - BPJ/data
Nutrient-Specific Public Education*	5%	5%	E. Livingston evaluation of CWP 2002

Citations:

BPJ = Best professional judgment

Center for Watershed Protection (CWP). 2002. Watershed Treatment Model Version 3.1.

FDOT District 7 & Univ. of South Florida. 2001. Street Sweeping and Stormwater Runoff, Phase II Report.

Harper, H. & D. Baker. 2007. Evaluation of Current Stormwater Design Criteria within the State of Florida.

Harper, H.H. 1999. Pollutant removal efficiencies for typical stormwater management systems in FL. Florida Water Resources Journal September: 22-26

* Applies to entities with nutrient-specific education programs (e.g. FYN).

Additional Information for Street Sweeping , Stormceptor and CDS Calculations

Only new or enhanced efforts since the TMDL data period (such as increased frequency of street sweeping) can be counted as credits in the BMAP. Please make sure you are computing only efforts initiated or enhanced in 1995 or later. The percent reductions for street sweeping are based on an estimate of the catchment basin loading to the roads where street sweeping is performed. The calculations are as follows:

Street sweeping reduction = (percent reduction from table based on sweeping frequency) x (load from road catchment basin)

The roadway load should be computed based on the area that the road drains; the event mean concentration (EMC) of the land use in that area; and the soil curve number based on area soils. The specific soils and land use information are needed to utilize the percent reductions listed on the table. If there is only a more general estimate of roadway loads available that is not based on site-specific land use and soil data, the general estimate can be used but the computed reduction should be reduced by fifty percent. For example, there is an estimated reduction of 0.20 in TP for street sweeping twice per week. If the roadway load estimate is a generalized estimate, apply a 0.10 reduction to the road load [0.20 (TP estimated reduction @ 2x/wk) x 0.50 (adjustment for generalized load estimate) = 0.10].

A similar approach applies to the percent reduction value for Stormceptor and CDS units. The load from the area that the BMP serves should be estimated based on specific EMCs and soil curve numbers and then the percent of reduction from the table applied to the estimated load. Please be prepared to provide documentation on your calculations for any of these BMPs.

Additional Information on Public Education Credits

There is a separate instruction sheet on public education credits that describes the criteria for credit in more detail. Please note that the maximum credit for public education efforts is five percent of the starting load of nitrogen and phosphorus based on a full suite of nutrient-specific education efforts including a Florida Yards and Neighborhoods Program, a collection of Florida-Friendly yard ordinances, and activities such as public service announcements, brochures and websites. The public education credit instructions are available on request by e-mailing FDEP contractor Marcy Policastro at mpolicastro@wildwoodconsulting.net or calling 904-829-0394.